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U.S. Department of Justice
Office of Justice Programs
National Institute of Justice

National Institute of Justice

Law Enforcement and Corrections Standards and Testing Program

Guide for the Selection of Personal Protective Equipment for Emergency First Responders (Percutaneous Protection—Garments)

NIJ Guide 102–00

Volume IIb

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ABOUT THE LAW ENFORCEMENT AND CORRECTIONS STANDARDS AND TESTING PROGRAM

The Law Enforcement and Corrections Standards and Testing Program is sponsored by the Office of Science and Technology of the National Institute of Justice (NIJ), U.S. Department of Justice. The program responds to the mandate of the Justice System Improvement Act of 1979, which created NIJ and directed it to encourage research and development to improve the criminal justice system and to disseminate the results to Federal, State, and local agencies.

The Law Enforcement and Corrections Standards and Testing Program is an applied research effort that determines the technological needs of justice system agencies, sets minimum performance standards for specific devices, tests commercially available equipment against those standards, and disseminates the standards and the test results to criminal justice agencies nationally and internationally.

The program operates through:

The *Law Enforcement and Corrections Technology Advisory Council* (LECTAC) consisting of nationally recognized criminal justice practitioners from Federal, State, and local agencies, which assesses technological needs and sets priorities for research programs and items to be evaluated and tested.

The *Office of Law Enforcement Standards* (OLES) at the National Institute of Standards and Technology, which develops voluntary national performance standards for compliance testing to ensure that individual items of equipment are suitable for use by criminal justice agencies. The standards are based upon laboratory testing and evaluation of representative samples of each item of equipment to determine the key attributes, develop test methods, and establish minimum performance requirements for each essential attribute. In addition to the highly technical standards, OLES also produces technical reports and user guidelines that explain in nontechnical terms the capabilities of available equipment.

The *National Law Enforcement and Corrections Technology Center (NLECTC)*, operated by a grantee, which supervises a national compliance testing program conducted by independent laboratories. The standards developed by OLES serve as performance benchmarks against which commercial equipment is measured. The facilities, personnel, and testing capabilities of the independent laboratories are evaluated by OLES prior to testing each item of equipment, and OLES helps the NLECTC staff review and analyze data. Test results are published in Equipment Performance Reports designed to help justice system procurement officials make informed purchasing decisions.

Publications are available at no charge through the National Law Enforcement and Corrections Technology Center. Some documents are also available online through the Internet/World Wide Web. To request a document or additional information, call 800–248–2742 or 301–519–5060, or write:

National Law Enforcement and Corrections Technology Center
P.O. Box 1160
Rockville, MD 20849–1160
E-Mail: *asknlectc@nlectc.org*
World Wide Web address: *http://www.nlectc.org*

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Guide for the Selection of Personal Protection Equipment for Emergency First Responders (Percutaneous Protection—Overgarments)

NIJ Guide 102–00, Volume IIb

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NCJ ######

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National Institute of Justice

Sarah V. Hart
Director

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This guide was prepared by the Office of Law Enforcement
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FOREWORD

The Office of Law Enforcement Standards (OLES) of the National Institute of Standards and Technology (NIST) furnishes technical support to the National Institute of Justice (NIJ) program to support law enforcement and criminal justice in the United States. The function of OLES is to develop standards and conduct research that will assist law enforcement and criminal justice agencies.

OLES is: (1) subjecting existing equipment to laboratory testing and evaluation, and (2) conducting research leading to the development of several series of documents, including national standards, user guides, and technical reports.

This document covers research conducted by OLES under the sponsorship of NIJ. Additional reports as well as other documents are being issued under the OLES program in the areas of protective clothing and equipment, communications systems, emergency equipment, investigative aids, security systems, vehicles, weapons, and analytical techniques and standard reference materials used by the forensic community.

Technical comments and suggestions concerning this guide are invited from all interested parties. They may be addressed to the Office of Law Enforcement Standards, National Institute of Standards and Technology, 100 Bureau Drive, Stop 8102, Gaithersburg, MD 20899–8102.

Sarah V. Hart, Director
National Institute of Justice

Acknowledgments

We thank Ms. Kathleen Higgins and Dr. Alim Fatah of the National Institute of Standards and Technology (NIST) for programmatic support and for numerous valuable discussions concerning the contents of this document. Mr. Bill Haskell of the U.S. Army Soldier and Biological Chemical Command (SBCCOM), Mr. Richard Vigus of SBCCOM, Ms. Priscilla S. Golden of General Physics, and Mr. Todd Brethauer representing the Technical Support Working Group (TSWG)[3] also reviewed the document and provided numerous useful comments. In addition, the authors want to acknowledge and thank the emergency first responders who reviewed the document and responded with positive and helpful comments.

We wish to acknowledge the Personal Protection and Operational Equipment (PPE) subgroup of the InterAgency Board (IAB) for Equipment Standardization and InterOperability. The IAB (made up of government and first responder representatives) was commissioned by the Attorney General of the United States in conjunction with the Department of Defense's Director of Military Support. The IAB was established to ensure equipment standardization and interoperability and to oversee the research and development of advanced technologies to assist first responders at the state and local levels in establishing and maintaining a robust crisis and consequence management capability.[4]

We also sincerely thank all vendors who provided us with information about their products.

[3]The Technical Support Working Group (TSWG) is the U.S. national forum that identifies, prioritizes, and coordinates interagency and international research and development (R&D) requirements for combating terrorism. Through the Department of Defense's Combating Terrorism Technology Support Program and funding provided by other agencies, the TSWG rapidly develops technologies and equipment to meet the high-priority needs of the combating terrorism community, and addresses joint international operational requirements through cooperative R&D with major allies.

[4]The Marshall Convention, Standardized Weapons of Mass Destruction (WMD) Response Force Equipment and InterOperability, 2 to 4 November 1999.

CONTENTS

COMMONLY USED SYMBOLS AND ABBREVIATIONS

A	ampere	h	hour	oz.	ounce
ac	alternating current	hf	high frequency	No.	number
AM	amplitude modulation	Hz	hertz	o.d.	outside diameter
cd	candela	i.d.	inside diameter	Ω	ohm
cm	centimeter	in	inch	p.	page
CP	chemically pure	IR	infrared	Pa	pascal
c/s	cycle per second	J	joule	pe	probable error
d	day	L	lambert	pp.	pages
dB	decibel	L	liter	ppm	parts per million
dc	direct current	lb	pound	qt	quart
°C	degree Celsius	lbf	pound-force	rad	radian
°F	degree Fahrenheit	lbf·in	pound-force inch	rf	radio frequency
dia	diameter	lm	lumen	rh	relative humidity
emf	electromotive force	ln	logarithm (base e)	s	second
eq	equation	log	logarithm (base 10)	SD	standard deviation
F	farad	M	molar	sec.	Section
fc	footcandle	m	meter	SWR	standing wave ratio
fig.	Figure	μ	micron	uhf	ultrahigh frequency
FM	frequency modulation	min	minute	UV	ultraviolet
ft	foot	mm	millimeter	V	volt
ft/s	foot per second	mph	miles per hour	vhf	very high frequency
g	acceleration	m/s	meter per second	W	watt
g	gram	mo	month	λ	wavelength
gal	gallom	N	newton	wk	week
gr	grain	N·m	newton meter	wt	weight
H	henry	nm	nanometer	yr	year

area=unit^2 (e.g., ft^2, in^2, etc.); volume=unit^3 (e.g., ft^3, m^3, etc.)

ACRONYMS SPECIFIC TO THIS DOCUMENT

ASTM	American Society for Testing and Materials	NIOSH	National Institute for Occupational Safety and Health
BW	Biological Warfare	NIST	National Institute of Standards and Technology
CB	Chemical and Biological	NIJ	National Institute of Justice
CBW	Chemical Biological Warfare	NATO	North Atlantic Treaty Organization
CPU	Collective Protective Undergarment	NBC	Nuclear, Biological, and Chemical
CW	Chemical Warfare	OSHA	Occupational Safety and Health Administration
DOD	Department of Defense	PAPR	Powered Air Purifying Respirator
DTAPS	Disposable Toxicological Agent Protective Suit	PF	Protection Factor
DPG	Dugway Proving Grounds	PICS	Personal Ice Cooling System
DRES	Defense Research Establishment Suffield	POL	Petroleum, Oils, and Lubricants
ECBE	Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD	PPE	Personal Protection Equipment
EOD	Explosive Ordnance Disposal	PPV	Positive Pressure Ventilation
EPA	Environmental Protection Agency	PVC	Polyvinyl chloride
ERDEC	U.S. Army Edgewood Research, Development and Engineering Center	SBCCOM	U.S. Army Soldier and Biological Chemical Command
FBI	Federal Bureau of Investigation	SCBA	Self-Contained Breathing Apparatus
FR	Fire Resistant	SCFM	Standard Cubic Feet per Minute
HAZMAT	Hazardous Materials	STB	Super Tropical Bleach
IDLH	Immediately Dangerous to Life and Health	TAP	Toxicological Agent Protective
IAB	Interagency Board	TICs	Toxic Industrial Chemicals
ITAR	International Traffic and Arms Regulations	TIMs	Toxic Industrial Materials
NFPA	National Fire Protection Association	TSWG	Technical Support Working Group

PREFIXES (See ASTM E380)

d	deci (10^{-1})	da	deka (10)
c	centi (10^{-2})	h	hecto (10^{2})
m	milli (10^{-3})	k	kilo (10^{3})
µ	micro (10^{-6})	M	mega (10^{6})
n	nano (10^{-9})	G	giga (10^{9})
p	pico (10^{-12})	T	tera (10^{12})

COMMON CONVERSIONS

0.30480 m =1 ft	4.448222 N = 1 lbf
25.4 mm = 1 in	1.355818 J = 1 ft·lbf
0.4535924 kg = 1 lb	0.1129848 N m = 1 lbf·in
0.06479891g = 1gr	14.59390 N/m = 1 lbf/ft
0.9463529 L = 1 qt	6894.757 Pa = 1 lbf/in^2
3600000 J = 1 kW·hr	1.609344 km/h = 1 mph

psi = mm of Hg x (1.9339×10^{-2})

mm of Hg = psi x 51.71

Temperature: $T\,{}^{\circ}_{C} = (T\,{}^{\circ}_{F} - 32) \times 5/9$

Temperature: $T\,{}^{\circ}_{F} = (T\,{}^{\circ}_{C} \times 9/5) + 32$

EXECUTIVE SUMMARY

The National Institute of Justice is the focal point for providing support to State and local law enforcement agencies in the development of counterterrorism technology and standards, including technology needs for chemical and biological defense. In recognizing the needs of State and local emergency first responders, the Office of Law Enforcement Standards (OLES) at the National Institute of Standards and Technology (NIST), supported by the National Institute of Justice (NIJ), the Technical Support Working Group (TSWG), the U.S. Army Soldier and Biological Chemical Command, and the Interagency Board for Equipment Standardization and Interoperability (IAB), is developing chemical and biological defense equipment guides. The guides will focus on chemical and biological equipment in areas of detection, personal protection, decontamination, and communication. This document focuses specifically on assisting the emergency first responder community in the evaluation and purchase of personal protective equipment.

The long range plans are to: (1) subject existing personal protective equipment to laboratory testing and evaluation against a specified protocol, and (2) conduct research leading to the development of multiple series of documents, including national standards, user guides, and technical reports. It is anticipated that the testing, evaluation, and research processes will take several years to complete; therefore, the National Institute of Justice has developed this initial guide for the emergency first responder community in order to facilitate their evaluation and purchase of personal protective equipment.

In conjunction with this program, additional guides, as well as other documents, are being issued in the areas of chemical agent and toxic industrial material detection equipment, biological agent detection equipment, decontamination equipment, and communication equipment.

This Volume, IIb, of the *Guide for the Selection of Personal Protective Equipment for Emergency First Responders*, which focuses on percutaneous (skin) protection other than apparel—herein referred to as garments (specifically suits, coveralls, and ensembles). It contains the information data sheets that were used to support the personal protective equipment evaluation detailed in Volume I. The compilation of data in Volume IIb is the result of the merger of several data acquisition methods used independently by NIST and TSWG.

The information contained in this guide has been obtained through literature searches and market surveys. The vendors were contacted multiple times during the preparation of this guide to ensure data accuracy. In addition, the information is supplemented with test data obtained from other sources (e.g., Department of Defense), if available. It should also be noted that the purpose of this guide is not to provide recommendations but rather to serve as a means to provide information to the reader to compare and contrast commercially available personal protective equipment. *Reference herein to any specific commercial products, processes, or services by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The information and statements contained in this guide shall not be used for the purposes of advertising, nor to imply the endorsement or recommendation of the United States Government.*

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With respect to information provided in this guide, neither the United States Government nor any of its employees make any warranty, expressed or implied, including but not limited to the warranties of merchantability and fitness for a particular purpose. Further, neither the United States Government nor any of its employees assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed.

Technical comments, suggestions, and product updates are encouraged from interested parties. They may be addressed to the Office of Law Enforcement Standards, National Institute of Standards and Technology, 100 Bureau Drive, Stop 8102, Gaithersburg, MD 20899–8102. It is anticipated that this guide will be updated periodically.

Questions relating to the specific devices included in this document should be addressed directly to the proponent agencies or the equipment manufacturers. Contact information for each equipment item included in this guide can be found in this volume (Vol. IIb).

WORKING DRAFT

GUIDE FOR THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT FOR EMERGENCY FIRST RESPONDERS (PERCUTANEOUS PROTECTION—GARMENTS)

This guide includes information intended to be useful to the emergency first responder community in the selection of personal protective equipment (PPE) that includes chemical and biological protective clothing and respiratory equipment for different applications. This Volume, IIb, of the *Guide for the Selection of Personal Protective Equipment for Emergency First Responders*, includes details on the 180 personal protective equipment items that are referenced in Volume I.

1. INTRODUCTION

The *Guide for the Selection of Personal Protection Equipment for Emergency First Responders* includes information intended to be useful to the emergency first responder community in the selection of PPE (percutaneous and respiratory). Due to the large number of PPE items identified for the guide, the guide is separated into four volumes. Volume I serves as the selection tool for all PPE, while Volume IIa serves as a repository for the respiratory protective data sheets, Volume IIb serves as a repository for the percutaneous protective equipment (garments) data sheets, and Volume IIc serves as a repository for the percutaneous protective equipment (apparel) data sheets.

2. IDENTIFICATION OF PERSONAL PROTECTION EQUIPMENT

An extensive market survey was conducted to identify commercially available personal protective equipment. This market survey encompassed the assessment of past market surveys, identification of new equipment, and interaction with numerous equipment vendors.

2.1 Identification of New Equipment

A variety of sources were utilized to identify commercially available personal protective equipment, including a Commerce Business Daily (CBD) Announcement, literature searches, database searches, Internet searches, technical conferences, and technical contacts. These sources resulted in the identification of 180 personal protective equipment items (garments).

2.2 Vendor Contact

Vendors were contacted three separate times in order to obtain additional product information, as well as to finalize their specific equipment data for inclusion in the guide. An initial contact occurred in the last quarter of 1999, when the manufacturers and vendors were asked to supply detailed information about their products. Each vendor received a facsimile or an electronic mail message that contained the definitions for the data fields. They were asked to supply information on vendor specific personal equipment items corresponding to the data field definitions.

The second contact occurred during the March/April 2000 time period in order to finalize the equipment data sheets and the information contained in the guide. This contact was conducted by facsimile and electronic mail. The vendors were given two weeks to review the information.

The third contact was made during February 2001. Each vendor received a facsimile or an electronic mail message that contained the data sheets for their specific equipment item(s), the selection factors that were developed to assist with the selection and purchase of the most appropriate equipment, and the results of the evaluation of the personal protective equipment against the selection factors. The vendors were asked to review the data sheets and tables for completeness and accuracy of the incorporated data. The vendors were given three weeks to review the information.

3. DATA FIELDS

Appendix E serves as a compendium of commercially available personal protective equipment. Each of the 180 identified personal protective equipment items is detailed within appendix E. Forty-nine data fields, as defined in this section, were used for providing information relating to the personal protective equipment. It is important to note that these data fields were developed using input from the emergency responder community.

The data fields are organized into the following five categories:

- General.
- Operational Parameters.
- Physical Parameters.
- Logistical.
- Special Requirements.

The remainder of this section defines each of the 49 data fields by category.

3.1 General Category

The General category includes the following data fields:

1. Name.
2. ID #.
3. Technology.
4. Stock Number.
5. Protection Type.
6. Equipment Category.
7. Availability.
8. Current User.
9. Manufacturer.
10. Manufacturer Type.
11. Developer.
12. Source.
13. Certification.

Each of these data fields is defined in more detail in the remainder of this section.

3.1.1 Name

The Name data field is used to identify the name of the equipment.

3.1.2 ID

The ID # data field is for identification purposes only.

3.1.3 Technology

The Technology data field identifies the material or process by which a piece or suite of equipment supplies protection from chemical (CW agents and TIMs), biological agents, and nuclear particulates. Percutaneous protection is generally afforded by material technologies (such as carbon sphere materials, selectively-permeable or semi-permeable materials) or finish/treatment or coating add-ons (such as a water-repellant coating, an electrostatic finish, or a reactive coating).

3.2.2 Stock Number

The Stock Number data field includes the stock identification or national stock number, if the item has one.

3.2.2 Protection Type

The Protection Type data field identifies whether the equipment provides percutaneous (skin) and/or respiratory protection.

3.1.6 Equipment Category

The Equipment Category data field identifies if the equipment is SCBA, PAPR, tethered air, canister, etc.

3.1.7 Availability

The Availability data field refers to how readily available a piece of equipment is (e.g., how long it takes to receive equipment upon purchasing) or availability status of the equipment (e.g., commercial availability).

3.1.8 Current User

The Current User data field is used to identify organizations that are currently using the piece of equipment.

3.1.9 Manufacturer

The Manufacturer data field identifies the company that manufactured the piece of equipment (to include the name, address, telephone number, and point-of-contact).

3.1.10 Manufacturer Type

The Manufacturer Type data field indicates whether the manufacturer is domestic or foreign.

3.1.11 Developer

The Developer data field identifies the organization that developed the item. This may be relevant when the developer is the government and the responsible technical agency may need to be identified.

3.1.12 Source

The Source data field indicates where the equipment information was obtained. Potential sources include past market surveys and Internet web sites.

3.1.13 Certification

The Certification data field identifies the agency certifying the system for use (i.e., OSHA, NIOSH, NFPA, etc.), if any.

3.2 Operational Parameters Category

The Operational Parameters Category includes the following five data fields:

1. Chemical Warfare (CW) Agents Protection.
2. Biological Warfare (BW) Agents Protection.
3. Toxic Industrial Material (TIMs) Protection.
4. Duration of Protection.
5. Recommended Use(s).

Each of these data fields is defined in more detail in the remainder of this section.

3.2.1 Chemical Warfare (CW) Agents Protection

The Chemical Warfare Agents Protection data field indicates the type of chemical warfare (CW) agent. The most common types of classic CW agents are the nerve and blister agents. Nerve agents include GA (Tabun), GB (Sarin), GD (Soman), GF, and VX. Blister agents include H and HD (Sulfur Mustards), HN (Nitrogen Mustard), and L (Lewisite).

3.2.2 Biological Warfare (BW) Agents Protection

The Biological Warfare (BW) Agents Protection data field indicates the type of biological warfare (BW) agent. Classical BW agent types include bacteria (Anthrax), rickettsia (Typhus), toxins (Botulinum Toxin), and viruses (Q Fever).

3.2.3 Toxic Industrial Material (TIMs) Protection

The Toxic Industrial Material (TIMs) Protection data field indicates the type of toxic industrial material (TIM) agent. TIMs are used in a variety of settings such as manufacturing facilities, maintenance areas, and storage areas. TIMs are further characterized by using a high, medium,

or low hazard index. Examples of TIMs are ammonia, carbon monoxide, chlorine, hydrogen cyanide, phosgene, and mineral acids (i.e., hydrochloric acid, sulfuric acid, nitric acid, etc.).

3.2.4 Duration of Protection

The Duration of Protection data field indicates the amount of time the equipment provides adequate protection. Since duration varies depending on the concentration of agent, type of agent, and environmental conditions, duration will be given with respect to specific conditions.

3.2.5 Recommended Use(s)

The Recommended Use(s) data field idendifies the areas where the equipment is most likely to be used per vendor or manufacturer recommendation (e.g., tactical operations, crisis management, etc.).

3.3 Physical Parameters Category

The Physical Parameters Category includes the following data fields:

1. Sizes Available.
2. Weight.
3. Package Size and Volume.
4. Power Requirements.
5. Material Type (Percutaneous).
6. Construction Type (Percutaneous).
7. Color.

Each of these data fields is defined in more detail in the remainder of this section.

3.3.1 Size Available

The Size Available data field provides available sizes for an item, to include both male and female when appropriate.

3.3.2 Weight

The Weight data field indicates the total weight of the equipment/system.

3.3.3 Package Size and Volume

The Package Size and Volume data field provides the external dimensions of the system when packaged (for storage and transportability).

3.3.4 Power Requirements

The Power Requirements data field indicates the type of power (ac, dc, etc.) required to operate the equipment. This category applies primarily to respiratory, respiratory support equipment, and heating/cooling systems.

3.3.5 Material Type (Percutaneous)

The Material Type data field refers to the material content of the suit and the level of impermeability (i.e., impermeable, selectively permeable, or permeable). Note if the protective clothing is fire retardant or contains thermoplastic material (could potentially burn the wearer).

3.3.6 Construction Type (Percutaneous)

The Construction Type data field indicates how seams are sealed. This data field applies primarily to percutaneous equipment.

3.3.7 Color

The Color data field indicates if equipment has camouflage capability (signature reduction). Color can help identify job type.

3.4 Logistical Parameters Category

The Logistical Parameters category includes the following data fields:

1. Ease of Use.
2. Consumables.
3. Maintenance Requirements.
4. Shelf Life.
5. Transportability.
6. Operational Limitations.
7. Environmental Conditions.
8. Unit Cost.
9. Maintenance Cost.
10. Warranty.
11. Don/Doff Information.
12. Use/Reuse.
13. Launderability (Percutaneous).
14. Accessories.

Each of these data fields is defined in more detail in the remainder of this section.

3.4.1 Ease of Use

Ease of Use is the mobility and flexibility of an individual while wearing the equipment as well as the compatibility of the equipment with other equipment.

3.4.2 Consumables

Consumables are the supplies used during operation and storage. Examples of consumables are batteries, canisters, hoses, etc.

3.4.3 Maintenance Requirements

Maintenance Requirements are the services and parts required to keep the system at its peak operational readiness (e.g., preventative maintenance) and the frequency of required maintenance (e.g., after use, quarterly, annually, etc.)

3.4.4 Shelf Life

Shelf Life is the length of time a piece of equipment can be stored before it needs to be replaced. Shelf life information should include the recommended storage procedure and any factors that decrease shelf life (e.g., UV, and critical temperature).

3.4.5 Transportability

Transportability is the ability of the equipment to be transported, including any support equipment (e.g., respiratory equipment and heating/cooling systems).

3.4.6 Operational Limitations

Operational Limitations refer to the length of time responders can safely work at various temperatures (i.e., 50 °F, 70 °F, and 90 °F) and the availability/compatibility of cooling systems to help manage heat stress.

3.4.7 Environmental Conditions

Environmental Conditions indicate whether the equipment is designed for use in all common outdoor weather conditions and climates (e.g., rain, snow, extreme temperatures, and humidity) or only under relatively controlled conditions.

3.4.8 Unit Cost

Unit Cost is the cost of a complete system, including support equipment and operating costs (i.e., consumables).

3.4.9 Maintenance Cost

Maintenance Cost is the cost required to maintain the system at its operational readiness. This cost will be based on equipment usage rates.

3.4.10 Warranty

The Warranty is the length of time a piece of equipment is guaranteed by the manufacturer, including the terms of the warranty (parts and labor).

3.4.11 Don/Doff Information

The Don/Doff Information indicates whether the system requires assistance for donning and/or doffing and the average time for this activity.

3.4.12 Use/Reuse

Use/Reuse indicates the need for any part of the equipment to be discarded after use or its ability to be reused. The data field includes the procedures used to decontaminate and/or dispose of used equipment.

3.4.13 Launderability (Percutaneous)

Launderability includes the laundering procedures that are safe for the item, including the number of times the suit can be laundered and remain efficacious. Also, launderability includes any special procedures needed for specific components.

3.4.14 Accessories

Accessories include those items that are provided with the basic equipment.

3.5 Special Requirements Category

The Special Requirements Category includes the following data fields:

1. Training Requirements.
2. Training Available.
3. Manuals Available.
4. Surveillance Testing Requirements.
5. Support Equipment.
6. Testing Information.
7. Applicable Regulations.
8. Health Hazards.
9. Communications Interface Capability.
10. EOD Compatibility.

Each of these data fields is defined in more detail in the remainder of this section.

3.5.1 Training Requirements

The Training Requirements data field refers to the amount of instruction time the operator needs to become proficient in using a piece of equipment.

3.5.2 Training Available

The Training Available data field refers to training available from the manufacturer. This includes any initial training and recertification training that is available.

3.5.3 Manuals Available

The Manuals Available data field indicates the types of manuals available from the manufacturer (e.g., user manuals, training documentation, etc.).

3.5.4 Surveillance Testing Requirements

The Surveillance Testing Requirements data field specifies the testing required to keep a piece of equipment at its operational readiness (e.g., inspecting respiratory masks or suits for holes or tears).

3.5.5 Support Equipment

The Support Equipment data field refers to any additional equipment required to operate the primary unit.

3.5.6 Testing Information

The Testing Information data field includes any test data obtained from the manufacturer and other sources regarding any part of the equipment (e.g., validation testing including materials and ensemble testing such as abrasion, tear, wear, burst, and permeation testing).

3.5.7 Applicable Regulations

The Applicable Regulations data field includes any government and/or safety regulations that may apply to the possession, use, or storage of any part of the system.

3.5.8 Health Hazards

The Health Hazards data field identifies all materials that possess a potential health hazard.

3.5.9 Communications Interface Capability

The Communications Interface Capability data field refers to the ability of the personal protective equipment to interface with a communications system (network capability, hardwire capability, RF communication, etc.).

3.5.10 EOD Compatibility

The EOD Compatibility data field is the ability of the equipment to be used with EOD systems (i.e., suits). For example, a CB protective suit and respirator are required to be worn with an EOD suit in a CB environment.

APPENDIX A—REFERENCES

APPENDIX A—REFERENCES

1. Armando S. Bevelacqua and Richard H. Stilp, *Terrorism Handbook for Operational Responders*, Emergency Film Group, Edgartown, MA, January 1998.

2. Robert E. Hunt, Timothy Hayes, and Warren B. Carroll, *Guidelines for Mass Casualty Decontamination During a Terrorist Chemical Agent Incident*, Battelle, Columbus, OH, September 1999.

3. A.K. Stuempfle, D.J. Howells, S.J. Armour, and C.A. Boulet, *International Task Force 25: Hazard from Industrial Chemicals Final Report*, Edgewood Research Development and Engineering Center, Aberdeen Proving Ground, MD, AD–B236562, ERDEC–SP–061, April 1998.

4. *Responding to A Biological or Chemical Threat: A Practical Guide*, U.S. Department of State, Bureau of Diplomatic Security, Washington, DC, 1996.

5. *2000 Emergency Response Guidebook, A Guidebook for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident*, U.S. Department of Transportation, Research and Special Programs Administration, Tempest Publishing, Alexandria, VA, January 2000.

6. *Potential Military Chemical/Biological Agents and Compounds*, FM 3–9, AFR 355–7, NAVFAC P–467, Army Chemical School, Ft. McClellan, AL, December 12, 1990.

7. *Guidelines for Incident Commander's Use of Firefighter Protective Ensemble (FFPE) with Self Contained Breathing Apparatus (SCBA) for Rescue Operations During a Terrorist Chemical Agent Incident*, U.S. Army Soldier and Biological Chemical Command (SBCCOM) Domestic Preparedness Chemical Team, Aberdeen Proving Ground, MD, April 30, 1999.

8. Richard B. Belmonte, *Tests of Level A Suits—Protection Against Chemical and Biological Warfare Agents and Simulants: Executive Summary*, Soldier and Biological Chemical Command (SBCCOM), SCBRD–EN, Aberdeen Proving Ground, MD, June 1998.

9. Robert S. Lindsay, *Test Results of Level B Suits to Challenge by Chemical and Biological Warfare Agents and Simulants: Summary Report*, Soldier and Biological Chemical Command (SBCCOM), AMSSB–REN, Aberdeen Proving Ground, MD, April 1999.

APPENDIX B—INDEX BY PERCUTANEOUS PROTECTIVE EQUIPMENT (GARMENTS) IDENTIFICATION NUMBER

Index by Percutaneous Protective Equipment (Garments) Identification Number

ID #	*Percutaneous PPE (Garments) Name*	*Manufacturer*	*Page E–#*
21	Tychem® TK Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	61
22	Tychem® TK EX Commander Brigade Level A Ensemble, NFPA 1991 certified	DuPont Tyvek® Protective Apparel	64
23	Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	67
24	Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	70
25	Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	73
26	Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	76
27	Tychem® 10000 Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	79
28	Tychem® 10000 Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	82
29	Tychem® 10000 Deluxe Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	85
30	Tyvek® Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	88
31	Tychem® QC Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	91
32	Tychem® SL Utility Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	94
33	Tychem® SL Utility Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	97
34	Tychem® SL Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	100
35	Tychem® SL Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	103
36	Tychem® QC Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	106
37	Tychem® BR Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	109
38	Tychem® BR Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	112
39	Tychem® BR Deluxe Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	115
40	Tychem® TK Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	118

ID #	Percutaneous PPE (Garments) Name	Manufacturer	Page E–#
62	Kappler Responder® CSM OSHA Level A	Kappler Safety Group	195
63	Kappler Responder® CSM OSHA Level B	Kappler Safety Group	198
64	Lakeland Tychem® 10000 NFPA Certified Level A Ensemble	Lakeland Industries, Inc.	201
65	Lakeland Tychem® 10000 Level A Ensemble	Lakeland Industries, Inc.	204
66	Lakeland Tychem® 10000 Economy Level A Encapsulated Suit	Lakeland Industries, Inc.	207
67	Lakeland Tychem® 10000 Economy Level A Encapsulated Suit	Lakeland Industries, Inc.	210
68	Lakeland Tychem® 10000 Level A Suit	Lakeland Industries, Inc.	213
69	Lakeland Tychem® 9400 Level B Encapsulated Suit	Lakeland Industries, Inc.	216
70	Lakeland Tychem® 9400 Level B Encapsulated Suit	Lakeland Industries, Inc.	219
71	Lakeland Tychem® SL Level B Encapsulated Suit	Lakeland Industries, Inc.	222
72	Lakeland Tychem® 10000 Level B Encapsulated Suit	Lakeland Industries, Inc.	225
73	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	228
74	C-Cover S-89 One Piece NBC Protective Overgarment	New Pac Safety AB	231
75	C-Cover S/89N	New Pac Safety AB	234
76	C-Cover Dress S-97 NBC Protective Overgarment	New Pac Safety AB	237
77	Saratoga HAMMER Suit	Tex-Shield, Inc.	240
78	Saratoga Joint Service Lightweight Integrated Suit (JSLIST)	Tex-Shield, Inc.	243
79	Trellchem® High Performance Suit (HPS) Level A	Trelleborg Industries	246
80	Trellchem® TLU (Limited Use) Level A	Trelleborg Industries	249
81	Trellchem® Vapor Barrier Suit (VPI) Level A	Trelleborg Industries	252
82	Trellchem® Vapor Barrier Suit (VPS) Level A	Trelleborg Industries	255
83	Disposable Toxicological Agent Protective Suit (DTAPS)/Level C1	GEOMET Technologies, Inc.	258
84	Disposable Toxicological Agent Protective Suit (DTAPS)/Level C2	GEOMET Technologies, Inc.	261

ID #	Percutaneous PPE (Garments) Name	Manufacturer	Page E–#
85	Demilitarization Protective Ensembles (DPEs)	Vinyl Technology, Inc.	264
86	"Hot" Operation: Air-Fed Garments	Vinyl Technology, Inc.	267
87	CCA_DuPont Tyvek® F Coveralls	CCA and DuPont Europe	269
88	Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	272
89	Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	275
90	Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	278
91	Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	281
92	Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	284
93	Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	287
94	Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	290
95	Tyvek® Coverall	DuPont Tyvek® Protective Apparel	293
96	Tyvek® Coverall	DuPont Tyvek® Protective Apparel	296
97	Tyvek® Coverall	DuPont Tyvek® Protective Apparel	299
98	Tyvek® Coverall	DuPont Tyvek® Protective Apparel	302
99	Tyvek® Coverall	DuPont Tyvek® Protective Apparel	305
100	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	308
101	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	311
102	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	314
103	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	317
104	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	320
105	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	323
106	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	326
107	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	329
108	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	332
109	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	335
110	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	338
111	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	341
112	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	344
113	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	347
114	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	350
115	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	353
116	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	356
117	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	359
118	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	362

ID #	Percutaneous PPE (Garments) Name	Manufacturer	Page E–#
119	Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	365
120	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	368
121	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	371
122	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	374
123	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	377
124	Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	380
125	Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	383
126	Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	386
127	Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	389
128	Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	392
129	Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	395
130	Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	398
131	Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	401
132	Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	404
133	Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	407
134	Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	410
135	Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	413
136	Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	416
137	Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	419
138	Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	422
139	Kappler Coverall	Kappler Safety Group	425
140	Kappler Coverall	Kappler Safety Group	428
141	Kappler CPF 3 Coverall	Kappler Safety Group	432
142	Kappler Responder® Level B Coverall	Kappler Safety Group	436
143	Kappler Responder® Level B Coverall	Kappler Safety Group	440
144	Kappler Responder® Level B Coverall	Kappler Safety Group	444
145	Kappler Ensemble, EPA Level A	Kappler Safety Group	448
146	Kappler CPF 4 Coverall	Kappler Safety Group	451
147	Kappler CPF 3 Coverall	Kappler Safety Group	455
148	Kappler CPF 4 Coverall	Kappler Safety Group	459
149	Kappler CPF 3 Coverall	Kappler Safety Group	463
150	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	467
151	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	470

ID #	Percutaneous PPE (Garments) Name	Manufacturer	Page E–#
152	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	473
153	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	476
154	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	479
155	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	482
156	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	485
157	Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	488
158	Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	491
159	Lakeland Tyvek QC Level B Coverall	Lakeland Industries, Inc.	494
160	Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	497
161	Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	500
162	Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	503
163	Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	506
164	Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	509
165	Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	512
166	Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	515
167	Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	518
168	Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	521
169	Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	524
170	Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	527
171	Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	530
172	Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	533
173	Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	536
174	Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	539
175	Chemical Protective Overgarments (CPO)	LANX Fabric Systems	542
176	U.S. Air Force Saratoga CWU-66/P Coverall	Tex-Shield, Inc.	545
177	CB Incident Emergency Escape Kit	EAI Corporation	548
178	SEA Tyvek® “F” Suit Level B	SEA	551
179	NewPac CEMI COVER DRESS C/91	New Pac Safety AB	554
180	NewPac First Responder PPE Kit	New Pac Safety AB	557

APPENDIX C—INDEX BY PERCUTANEOUS PROTECTIVE EQUIPMENT (GARMENTS) NAME

Index by Percutaneous Protective Equipment (Garments) Name

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
CB Incident Emergency Escape Kit	EAI Corporation	177	548
CCA_DuPont Tyvek® F Coveralls	CCA and DuPont Europe	87	269
C-Cover Dress S-97 NBC Protective Overgarment	New Pac Safety AB	76	237
C-Cover S/89N	New Pac Safety AB	75	234
C-Cover S-89 One Piece NBC Protective Overgarment	New Pac Safety AB	74	231
Chemical Protective Overgarments (CPO)	LANX Fabric Systems	175	542
Chemturion® Suit: Model 13 Level A (SCBA)	ILC Dover, Inc.	46	136
Chemturion® Suit: Model 35 Level A Laboratory Suit	ILC Dover, Inc.	47	139
Chemturion® Suit: Model 84 Level A Total Encapsulating Suit	ILC Dover, Inc.	49	145
Chemturion® Suit: Ready 1 Model 91 Level A Limited Use	ILC Dover, Inc.	48	142
Demilitarization Protective Ensembles (DPEs)	Vinyl Technology, Inc.	85	264
Disposable Toxicological Agent Protective Suit (DTAP)/Level A	GEOMET Technologies, Inc.	43	127
Disposable Toxicological Agent Protective Suit (DTAP)/Level B	GEOMET Technologies, Inc.	44	130
Disposable Toxicological Agent Protective Suit (DTAPS)/Level C1	GEOMET Technologies, Inc.	83	258
Disposable Toxicological Agent Protective Suit (DTAPS)/Level C2	GEOMET Technologies, Inc.	84	261
EUROLITE NBC-Protection Suit	Goetzloff GmbH	45	133
"Hot" Operation: Air-Fed Garments	Vinyl Technology, Inc.	86	267
IPE (Individual Protection Equipment)	Irvin Aerospace Canada Ltd.	50	148
Kappler Coverall	Kappler Safety Group	139	425
Kappler Coverall	Kappler Safety Group	140	428
Kappler CPF 3 Coverall	Kappler Safety Group	141	432
Kappler CPF 3 Coverall	Kappler Safety Group	147	455
Kappler CPF 3 Coverall	Kappler Safety Group	149	463
Kappler CPF 3 Total Encapsulating Level B Suit	Kappler Safety Group	57	175
Kappler CPF 4 Coverall	Kappler Safety Group	146	451
Kappler CPF 4 Coverall	Kappler Safety Group	148	459

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
Kappler CPF 4 Total Encapsulating Level B Suit	Kappler Safety Group	59	183
Kappler CPF 4 Total Encapsulating Level B Suit	Kappler Safety Group	60	187
Kappler Ensemble, EPA Level A	Kappler Safety Group	145	448
Kappler Responder® CSM OSHA Level A	Kappler Safety Group	62	195
Kappler Responder® CSM OSHA Level B	Kappler Safety Group	63	198
Kappler Responder® Level B Coverall	Kappler Safety Group	142	436
Kappler Responder® Level B Coverall	Kappler Safety Group	143	440
Kappler Responder® Level B Coverall	Kappler Safety Group	144	444
Kappler Responder® Plus Total Encapsulating Level A suit	Kappler Safety Group	54	163
Kappler Responder® Total Encapsulating Level A Suit	Kappler Safety Group	52	155
Kappler Responder® Total Encapsulating Level A Suit (Gas-tight)	Kappler Safety Group	51	151
Kappler Responder® Total Encapsulating Level A Suit, NFPA 1991 (Vapor Protective)	Kappler Safety Group	55	167
Kappler Responder® Total Encapsulating Level B Suit (Liquid Protective)	Kappler Safety Group	58	179
Kappler Responder® Total Encapsulating Level B Suit (liquid protective)	Kappler Safety Group	61	191
Kappler Total Encapsulating Level A suit	Kappler Safety Group	53	159
Kappler Total Encapsulating Level B Suit	Kappler Safety Group	56	171
Lakeland Tychem® 10000 Economy Level A Encapsulated Suit	Lakeland Industries, Inc.	66	207
Lakeland Tychem® 10000 Economy Level A Encapsulated Suit	Lakeland Industries, Inc.	67	210
Lakeland Tychem® 10000 Level A Ensemble	Lakeland Industries, Inc.	65	204
Lakeland Tychem® 10000 Level A Suit	Lakeland Industries, Inc.	68	213
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	73	228
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	150	467
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	151	470
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	152	473
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	153	476
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	154	479
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	155	482
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	156	485

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
Lakeland Tychem® 10000 Level B Coverall	Lakeland Industries, Inc.	157	488
Lakeland Tychem® 10000 Level B Encapsulated Suit	Lakeland Industries, Inc.	72	225
Lakeland Tychem® 10000 NFPA Certified Level A Ensemble	Lakeland Industries, Inc.	64	201
Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	170	527
Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	171	530
Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	172	533
Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	173	536
Lakeland Tychem® 9400 Level B Coverall	Lakeland Industries, Inc.	174	539
Lakeland Tychem® 9400 Level B Encapsulated Suit	Lakeland Industries, Inc.	69	216
Lakeland Tychem® 9400 Level B Encapsulated Suit	Lakeland Industries, Inc.	70	219
Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	164	509
Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	165	512
Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	166	515
Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	167	518
Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	168	521
Lakeland Tychem® SL Level B Coverall	Lakeland Industries, Inc.	169	524
Lakeland Tychem® SL Level B Encapsulated Suit	Lakeland Industries, Inc.	71	222
Lakeland Tyvek QC Level B Coverall	Lakeland Industries, Inc.	159	494
Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	158	491
Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	160	497
Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	161	500
Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	162	503
Lakeland Tyvek® QC Level B Coverall	Lakeland Industries, Inc.	163	506
Saratoga HAMMER Suit	Tex-Shield, Inc.	77	240
Saratoga Joint Service Lightweight Integrated Suit (JSLIST)	Tex-Shield, Inc.	78	243
STEPO Chemical Protective Suit	Chemfab Corporation	1	1
Trellchem® High Performance Suit (HPS) Level A	Trelleborg Industries	79	246
Trellchem® TLU (Limited Use) Level A	Trelleborg Industries	80	249
Trellchem® Vapor Barrier Suit (VPI) Level A	Trelleborg Industries	81	252

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
Trellchem® Vapor Barrier Suit (VPS) Level A	Trelleborg Industries	82	255
Tychem® 10000 Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	2	4
Tychem® 10000 Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	3	7
Tychem® 10000 Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	4	10
Tychem® 10000 Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	5	13
Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	88	272
Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	89	275
Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	90	278
Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	91	281
Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	92	284
Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	93	287
Tychem® 10000 Coverall	DuPont Tyvek® Protective Apparel	94	290
Tychem® 10000 Deluxe Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	29	85
Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	6	16
Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	7	19
Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	8	22
Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	9	25
Tychem® 10000 Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	27	79
Tychem® 10000 Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	28	82
Tychem® BR Commander Level A Fully Encapsulating	DuPont Tyvek® Protective Apparel	12	34

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
Tychem® BR Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	10	28
Tychem® BR Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	11	31
Tychem® BR Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	13	37
Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	125	383
Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	126	386
Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	127	389
Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	128	392
Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	129	395
Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	130	398
Tychem® BR Coverall	DuPont Tyvek® Protective Apparel	131	401
Tychem® BR Deluxe Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	39	115
Tychem® BR EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	14	40
Tychem® BR EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	15	43
Tychem® BR EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	16	46
Tychem® BR EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	17	49
Tychem® BR Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	37	109
Tychem® BR Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	38	112
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	104	320
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	100	308
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	101	311

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	102	314
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	103	317
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	105	323
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	106	326
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	107	329
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	108	332
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	109	335
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	120	368
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	121	371
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	122	374
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	123	377
Tychem® QC Coverall	DuPont Tyvek® Protective Apparel	124	380
Tychem® QC Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	31	91
Tychem® QC Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	36	106
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	110	338
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	111	341
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	112	344
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	113	347
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	114	350
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	115	353
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	116	356

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	117	359
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	118	362
Tychem® SL Coverall	DuPont Tyvek® Protective Apparel	119	365
Tychem® SL Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	34	100
Tychem® SL Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	35	103
Tychem® SL Utility Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	32	94
Tychem® SL Utility Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	33	97
Tychem® TK Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	18	52
Tychem® TK Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	19	55
Tychem® TK Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	20	58
Tychem® TK Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	21	61
Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	132	404
Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	133	407
Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	134	410
Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	135	413
Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	136	416
Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	137	419
Tychem® TK Coverall	DuPont Tyvek® Protective Apparel	138	422
Tychem® TK Deluxe Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	42	124
Tychem® TK EX Commander Brigade Level A Ensemble, NFPA 1991 certified	DuPont Tyvek® Protective Apparel	22	64
Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	23	67

Percutaneous PPE (Garments) Name	*Manufacturer*	*ID #*	*Page E–#*
Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	24	70
Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	25	73
Tychem® TK EX Commander Level A Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	26	76
Tychem® TK Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	40	118
Tychem® TK Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	41	121
Tyvek® Coverall	DuPont Tyvek® Protective Apparel	95	293
Tyvek® Coverall	DuPont Tyvek® Protective Apparel	96	296
Tyvek® Coverall	DuPont Tyvek® Protective Apparel	97	299
Tyvek® Coverall	DuPont Tyvek® Protective Apparel	98	302
Tyvek® Coverall	DuPont Tyvek® Protective Apparel	99	305
Tyvek® Level B Fully Encapsulating Suit	DuPont Tyvek® Protective Apparel	30	88
US Air Force Saratoga CWU-66/P Coverall	Tex-Shield, Inc.	176	545
SEA Tyvek® “F” Suit Level B	SEA	178	551
NewPac CEMI COVER DRESS C/91	New Pac Safety AB	179	554
NewPac First Responder PPE Kit	New Pac Safety AB	180	557

APPENDIX D—INDEX BY PERCUTANEOUS PROTECTIVE EQUIPMENT (GARMENTS) MANUFACATURER

Index by Percutaneous Protective Equipment (Garments) Manufacturer

Manufacturer	*Percutaneous PPE (Garments) Name*	*ID #*	*Page E–#*
CCA and DuPont Europe	CCA_DuPont Tyvek® F Coveralls	87	269
Chemfab Corporation	STEPO Chemical Protective Suit	1	1
DuPont Tyvek® Protective Apparel	Tychem® 10000 Commander Level A Fully Encapsulating Suit	2	4
DuPont Tyvek® Protective Apparel	Tychem® 10000 Commander Level A Fully Encapsulating Suit	3	7
DuPont Tyvek® Protective Apparel	Tychem® 10000 Commander Level A Fully Encapsulating Suit	4	10
DuPont Tyvek® Protective Apparel	Tychem® 10000 Commander Level A Fully Encapsulating Suit	5	13
DuPont Tyvek® Protective Apparel	Tychem® 10000 Coverall	88	272
DuPont Tyvek® Protective Apparel	Tychem® 10000 Coverall	89	275
DuPont Tyvek® Protective Apparel	Tychem® 10000 Coverall	90	278
DuPont Tyvek® Protective Apparel	Tychem® 10000 Coverall	91	281
DuPont Tyvek® Protective Apparel	Tychem® 10000 Coverall	92	284
DuPont Tyvek® Protective Apparel	Tychem® 10000 Coverall	93	287
DuPont Tyvek® Protective Apparel	Tychem® 10000 Coverall	94	290
DuPont Tyvek® Protective Apparel	Tychem® 10000 Deluxe Level B Fully Encapsulating Suit	29	85
DuPont Tyvek® Protective Apparel	Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	6	16
DuPont Tyvek® Protective Apparel	Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	7	19
DuPont Tyvek® Protective Apparel	Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	8	22
DuPont Tyvek® Protective Apparel	Tychem® 10000 EX Commander Level A Fully Encapsulating Suit	9	25
DuPont Tyvek® Protective Apparel	Tychem® 10000 Level B Fully Encapsulating Suit	27	79
DuPont Tyvek® Protective Apparel	Tychem® 10000 Level B Fully Encapsulating Suit	28	82
DuPont Tyvek® Protective Apparel	Tychem® BR Commander Level A Fully Encapsulating	12	34
DuPont Tyvek® Protective Apparel	Tychem® BR Commander Level A Fully Encapsulating Suit	10	28
DuPont Tyvek® Protective Apparel	Tychem® BR Commander Level A Fully Encapsulating Suit	11	31
DuPont Tyvek® Protective Apparel	Tychem® BR Commander Level A Fully Encapsulating Suit	13	37

Manufacturer	*Percutaneous PPE (Garments) Name*	*ID #*	*Page E–#*
DuPont Tyvek® Protective Apparel	Tychem® BR Coverall	125	383
DuPont Tyvek® Protective Apparel	Tychem® BR Coverall	126	386
DuPont Tyvek® Protective Apparel	Tychem® BR Coverall	127	389
DuPont Tyvek® Protective Apparel	Tychem® BR Coverall	128	392
DuPont Tyvek® Protective Apparel	Tychem® BR Coverall	129	395
DuPont Tyvek® Protective Apparel	Tychem® BR Coverall	130	398
DuPont Tyvek® Protective Apparel	Tychem® BR Coverall	131	401
DuPont Tyvek® Protective Apparel	Tychem® BR Deluxe Level B Fully Encapsulating Suit	39	115
DuPont Tyvek® Protective Apparel	Tychem® BR EX Commander Level A Fully Encapsulating Suit	14	40
DuPont Tyvek® Protective Apparel	Tychem® BR EX Commander Level A Fully Encapsulating Suit	15	43
DuPont Tyvek® Protective Apparel	Tychem® BR EX Commander Level A Fully Encapsulating Suit	16	46
DuPont Tyvek® Protective Apparel	Tychem® BR EX Commander Level A Fully Encapsulating Suit	17	49
DuPont Tyvek® Protective Apparel	Tychem® BR Level B Fully Encapsulating Suit	37	109
DuPont Tyvek® Protective Apparel	Tychem® BR Level B Fully Encapsulating Suit	38	112
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	104	320
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	100	308
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	101	311
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	102	314
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	103	317
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	105	323
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	106	326
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	107	329
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	108	332
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	109	335
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	120	368
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	121	371
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	122	374
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	123	377
DuPont Tyvek® Protective Apparel	Tychem® QC Coverall	124	380

Manufacturer	*Percutaneous PPE (Garments) Name*	*ID #*	*Page E–#*
DuPont Tyvek® Protective Apparel	Tychem® QC Level B Fully Encapsulating Suit	31	91
DuPont Tyvek® Protective Apparel	Tychem® QC Level B Fully Encapsulating Suit	36	106
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	110	338
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	111	341
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	112	344
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	113	347
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	114	350
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	115	353
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	116	356
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	117	359
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	118	362
DuPont Tyvek® Protective Apparel	Tychem® SL Coverall	119	365
DuPont Tyvek® Protective Apparel	Tychem® SL Level B Fully Encapsulating Suit	34	100
DuPont Tyvek® Protective Apparel	Tychem® SL Level B Fully Encapsulating Suit	35	103
DuPont Tyvek® Protective Apparel	Tychem® SL Utility Level B Fully Encapsulating Suit	32	94
DuPont Tyvek® Protective Apparel	Tychem® SL Utility Level B Fully Encapsulating Suit	33	97
DuPont Tyvek® Protective Apparel	Tychem® TK Commander Level A Fully Encapsulating Suit	18	52
DuPont Tyvek® Protective Apparel	Tychem® TK Commander Level A Fully Encapsulating Suit	19	55
DuPont Tyvek® Protective Apparel	Tychem® TK Commander Level A Fully Encapsulating Suit	20	58
DuPont Tyvek® Protective Apparel	Tychem® TK Commander Level A Fully Encapsulating Suit	21	61
DuPont Tyvek® Protective Apparel	Tychem® TK Coverall	132	404
DuPont Tyvek® Protective Apparel	Tychem® TK Coverall	133	407
DuPont Tyvek® Protective Apparel	Tychem® TK Coverall	134	410
DuPont Tyvek® Protective Apparel	Tychem® TK Coverall	135	413
DuPont Tyvek® Protective Apparel	Tychem® TK Coverall	136	416
DuPont Tyvek® Protective Apparel	Tychem® TK Coverall	137	419
DuPont Tyvek® Protective Apparel	Tychem® TK Coverall	138	422
DuPont Tyvek® Protective Apparel	Tychem® TK Deluxe Level B Fully Encapsulating Suit	42	124

Manufacturer	*Percutaneous PPE (Garments) Name*	*ID #*	*Page E–#*
DuPont Tyvek® Protective Apparel	Tychem® TK EX Commander Brigade Level A Ensemble, NFPA 1991 certified	22	64
DuPont Tyvek® Protective Apparel	Tychem® TK EX Commander Level A Fully Encapsulating Suit	23	67
DuPont Tyvek® Protective Apparel	Tychem® TK EX Commander Level A Fully Encapsulating Suit	24	70
DuPont Tyvek® Protective Apparel	Tychem® TK EX Commander Level A Fully Encapsulating Suit	25	73
DuPont Tyvek® Protective Apparel	Tychem® TK EX Commander Level A Fully Encapsulating Suit	26	76
DuPont Tyvek® Protective Apparel	Tychem® TK Level B Fully Encapsulating Suit	40	118
DuPont Tyvek® Protective Apparel	Tychem® TK Level B Fully Encapsulating Suit	41	121
DuPont Tyvek® Protective Apparel	Tyvek® Coverall	95	293
DuPont Tyvek® Protective Apparel	Tyvek® Coverall	96	296
DuPont Tyvek® Protective Apparel	Tyvek® Coverall	97	299
DuPont Tyvek® Protective Apparel	Tyvek® Coverall	98	302
DuPont Tyvek® Protective Apparel	Tyvek® Coverall	99	305
DuPont Tyvek® Protective Apparel	Tyvek® Level B Fully Encapsulating Suit	30	88
EAI Corporation	CB Incident Emergency Escape Kit	177	548
GEOMET Technologies, Inc.	Disposable Toxicological Agent Protective Suit (DTAP)/Level A	43	127
GEOMET Technologies, Inc.	Disposable Toxicological Agent Protective Suit (DTAP)/Level B	44	130
GEOMET Technologies, Inc.	Disposable Toxicological Agent Protective Suit (DTAPS)/Level C1	83	258
GEOMET Technologies, Inc.	Disposable Toxicological Agent Protective Suit (DTAPS)/Level C2	84	261
Goetzloff GmbH	EUROLITE NBC-Protection Suit	45	133
ILC Dover, Inc.	Chemturion® Suit: Model 13 Level A (SCBA)	46	136
ILC Dover, Inc.	Chemturion® Suit: Model 35 Level A Laboratory Suit	47	139
ILC Dover, Inc.	Chemturion® Suit: Model 84 Level A Total Encapsulating Suit	49	145
ILC Dover, Inc.	Chemturion® Suit: Ready 1 Model 91 Level A Limited Use	48	142
Irvin Aerospace Canada Ltd.	IPE (Individual Protection Equipment)	50	148

Manufacturer	*Percutaneous PPE (Garments) Name*	*ID #*	*Page E–#*
Kappler Safety Group	Kappler Coverall	139	425
Kappler Safety Group	Kappler Coverall	140	428
Kappler Safety Group	Kappler CPF 3 Coverall	141	432
Kappler Safety Group	Kappler CPF 3 Coverall	147	455
Kappler Safety Group	Kappler CPF 3 Coverall	149	463
Kappler Safety Group	Kappler CPF 3 Total Encapsulating Level B Suit	57	175
Kappler Safety Group	Kappler CPF 4 Coverall	146	451
Kappler Safety Group	Kappler CPF 4 Coverall	148	459
Kappler Safety Group	Kappler CPF 4 Total Encapsulating Level B Suit	59	183
Kappler Safety Group	Kappler CPF 4 Total Encapsulating Level B Suit	60	187
Kappler Safety Group	Kappler Ensemble, EPA Level A	145	448
Kappler Safety Group	Kappler Responder® CSM OSHA Level A	62	195
Kappler Safety Group	Kappler Responder® CSM OSHA Level B	63	198
Kappler Safety Group	Kappler Responder® Level B Coverall	142	436
Kappler Safety Group	Kappler Responder® Level B Coverall	143	440
Kappler Safety Group	Kappler Responder® Level B Coverall	144	444
Kappler Safety Group	Kappler Responder® Plus Total Encapsulating Level A suit	54	163
Kappler Safety Group	Kappler Responder® Total Encapsulating Level A Suit	52	155
Kappler Safety Group	Kappler Responder® Total Encapsulating Level A Suit (Gas-Tight)	51	151
Kappler Safety Group	Kappler Responder® Total Encapsulating Level A Suit, NFPA 1991 (Vapor Protective)	55	167
Kappler Safety Group	Kappler Responder® Total Encapsulating Level B Suit (Liquid Protective)	58	179
Kappler Safety Group	Kappler Responder® Total Encapsulating Level B Suit (Liquid Protective)	61	191
Kappler Safety Group	Kappler Total Encapsulating Level A Suit	53	159
Kappler Safety Group	Kappler Total Encapsulating Level B Suit	56	171

Manufacturer	Percutaneous PPE (Garments) Name	ID #	Page E–#
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Economy Level A Encapsulated Suit	66	207
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Economy Level A Encapsulated Suit	67	210
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level A Ensemble	65	204
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level A Suit	68	213
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	73	228
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	150	467
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	151	470
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	152	473
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	153	476
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	154	479
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	155	482
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	156	485
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Coverall	157	488
Lakeland Industries, Inc.	Lakeland Tychem® 10000 Level B Encapsulated Suit	72	225
Lakeland Industries, Inc.	Lakeland Tychem® 10000 NFPA Certified Level A Ensemble	64	201
Lakeland Industries, Inc.	Lakeland Tychem® 9400 Level B Coverall	170	527
Lakeland Industries, Inc.	Lakeland Tychem® 9400 Level B Coverall	171	530
Lakeland Industries, Inc.	Lakeland Tychem® 9400 Level B Coverall	172	533
Lakeland Industries, Inc.	Lakeland Tychem® 9400 Level B Coverall	173	536
Lakeland Industries, Inc.	Lakeland Tychem® 9400 Level B Coverall	174	539
Lakeland Industries, Inc.	Lakeland Tychem® 9400 Level B Encapsulated Suit	69	216
Lakeland Industries, Inc.	Lakeland Tychem® 9400 Level B Encapsulated Suit	70	219

Manufacturer	*Percutaneous PPE (Garments) Name*	*ID #*	*Page E–#*
Lakeland Industries, Inc.	Lakeland Tychem® SL Level B Coverall	164	509
Lakeland Industries, Inc.	Lakeland Tychem® SL Level B Coverall	165	512
Lakeland Industries, Inc.	Lakeland Tychem® SL Level B Coverall	166	515
Lakeland Industries, Inc.	Lakeland Tychem® SL Level B Coverall	167	518
Lakeland Industries, Inc.	Lakeland Tychem® SL Level B Coverall	168	521
Lakeland Industries, Inc.	Lakeland Tychem® SL Level B Coverall	169	524
Lakeland Industries, Inc.	Lakeland Tychem® SL Level B Encapsulated Suit	71	222
Lakeland Industries, Inc.	Lakeland Tyvek QC Level B Coverall	159	494
Lakeland Industries, Inc.	Lakeland Tyvek® QC Level B Coverall	158	491
Lakeland Industries, Inc.	Lakeland Tyvek® QC Level B Coverall	160	497
Lakeland Industries, Inc.	Lakeland Tyvek® QC Level B Coverall	161	500
Lakeland Industries, Inc.	Lakeland Tyvek® QC Level B Coverall	162	503
Lakeland Industries, Inc.	Lakeland Tyvek® QC Level B Coverall	163	506
LANX Fabric Systems	Chemical Protective Overgarments (CPO)	175	542
New Pac Safety AB	C-Cover Dress S-97 NBC Protective Overgarment	76	237
New Pac Safety AB	C-Cover S/89N	75	234
New Pac Safety AB	C-Cover S-89 One Piece NBC Protective Overgarment	74	231
Tex-Shield, Inc.	Saratoga HAMMER Suit	77	240
Tex-Shield, Inc.	Saratoga Joint Service Lightweight Integrated Suit (JSLIST)	78	243
Tex-Shield, Inc.	US Air Force Saratoga CWU-66/P Coverall	176	545
Trelleborg Industries	Trellchem® High Performance Suit (HPS) Level A	79	246
Trelleborg Industries	Trellchem® TLU (Limited Use) Level A	80	249
Trelleborg Industries	Trellchem® Vapor Barrier Suit (VPI) Level A	81	252
Trelleborg Industries	Trellchem® Vapor Barrier Suit (VPS) Level A	82	255
Vinyl Technology, Inc.	"Hot" Operation: Air-Fed Garments	86	267

Manufacturer	*Percutaneous PPE (Garments) Name*	*ID #*	*Page E–#*
Vinyl Technology, Inc.	Demilitarization Protective Ensembles (DPEs)	85	264
SEA	SEA Tyvek® “F” Suit Level B	178	551
New Pac Safety AB	NewPac CEMI COVER DRESS C/91	179	554
New Pac Safety AB	NewPac First Responder PPE Kit	180	557

APPENDIX E—PERCUTANEOUS PROTECTIVE EQUIPMENT (GARMENTS) DATA SHEETS

CLICK TO VIEW SEPARATE FILES: Pp. 1–90, Pp. 91-190, Pp. 191-310, Pp. 311-382, Pp. 383-466, Pp. 467-559